



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Seattle, WA 98115

October 10, 2002

Thomas F. Mueller  
Branch Chief  
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Seattle District Corps of Engineers  
Post Office Box 3755  
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Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Issuance of a Corps of Engineers Section 404 Permit for Dredging and Improvements at One Existing Boat Launch on the Cowlitz River, Washington (NOAA Fisheries Number WSB No. 00-114)

Dear Mr. Mueller:

The attached document transmits the National Marine Fisheries Service's (National Oceanic and Atmospheric Administration [NOAA] Fisheries) Biological Opinion (Opinion) and Essential Fish Habitat Consultation based on our review of the proposal to issue a permit to dredge and install boarding floats at two boat launches on the Cowlitz River, Cowlitz County, Washington. The U.S. Department of Army, Corps of Engineers initially determined that the proposed project was not likely to adversely affect Lower Columbia River (LCR) chinook salmon (*Oncorhynchus tshawytscha*), LCR steelhead trout (*O. mykiss*), and Columbia River chum salmon (*O. keta*). The enclosed document represents NOAA Fisheries' Opinion related to the effects of the actions on federally listed salmonids in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended.

This Opinion is based on information provided in a Biological Assessment dated June, 2000. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office. Formal consultation for this project was initiated on November 16, 2000.

The NOAA Fisheries concludes that implementation of the proposed project is not likely to jeopardize the continued existence of LCR chinook, LCR steelhead, CR chum. In your review, please note that the incidental take statement, which includes reasonable and prudent measures and terms and conditions, was designed to minimize take and avoid jeopardy.



If you have any questions, please contact Stephanie Ehinger of the Washington Habitat Branch Office at (360) 534-9341.

Sincerely,

*for Michael R Crouse*

D. Robert Lohn  
Regional Administrator

Enclosure

cc: Wally Jajous, URS Corp  
David Martin, COE

**Endangered Species Act-Section 7 Consultation**

**Biological Opinion  
and  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation**

**Issuance of Section 404 Permit for the  
Installation of One Dock and Dredging in the Cowlitz River, Cowlitz County, Washington  
WSB 00-114**

Agency: United States Department of the Army, Corps of Engineers

Consultation Conducted By:  
National Marine Fisheries Service

Northwest Region

Issued by: *For Michael R. Crouse*  
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Date Issued: October 10, 2002  
D. Robert Lohn  
Regional Administrator

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## **1.0 INTRODUCTION**

### **1.1 Background**

This document transmits National Marine Fisheries Service (National Oceanic and Atmospheric Administration [NOAA] Fisheries) Biological Opinion (Opinion) under the Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), of the Corps of Engineers' (COE) proposal to issue a dredge permit to improve boat access to the Cowlitz River in Cowlitz County, Washington. The proposal includes installation of a boarding float at an existing boat launch and annual dredging for boat access from this launch to the main channel of the Cowlitz River. The species covered by this Opinion are Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*), LCR chinook salmon (*O. tshawytscha*), and Columbia River (CR) chum salmon (*O. keta*). The species covered for the EFH consultation are chinook and coho (*O. kisutch*) salmon.

### **1.2 Description of the Proposed Action**

The COE proposes to issue the Longview Parks and Recreation Department a permit for facility improvements at Gerhard Garden Park Boat Launch in the lower Cowlitz River (Township 7N, Range 2W, and sections 2 and 11). Proposed improvements include the installation of boarding floats at an existing boat ramp, reconstruction and extension of an existing launch ramp, dredging to improve boat access, and restriping the parking lot to accommodate more vehicles.

The following construction related activities will occur at the site:

**Installation of One Boarding Float:** The applicant proposes install a set of six timber boarding floats and nine steel piles in the middle of the existing two lane concrete ramp. The final dimensions of the boarding floats will not exceed five feet in width and 120 feet in length (August 13, 2001 letter from URS Corporation). The bottom plywood cover will be painted white to increase light reflection under the structure. At low flow and low tide most of the float will ground out on the concrete ramp. Additionally, the applicant proposes to install a 320-foot long debris boom 20 foot. waterward of the ramp which will be held in place by nine steel piles.

**Dredging:** To improve boat access to the channel of the Cowlitz River, the applicant proposes to remove up to 6,000 cubic yards of material each year for a period of 10 years. Between July 1 and August 31, a clamshell bucket operated from a crane located on shore will be used to dredge. The crane will run on tracks on the sand which will be in the dry at all times. The dredge prism has the maximum dimensions of 300 feet long, 60 feet wide, and five feet deep. The channel would be dredged to minus three.0 feet Columbia River Datum (CRD) in depth. At river mile 1.5 the Ordinary Low Water (OLW) is at 0.12 feet CRD. The dredged channel would extend to a maximum of about half the river width at the launch site. All dredging will occur at low tide and the dredge machinery will be placed in the dry at all times. Also, the dredged channel will be dry during dredging operations due to low summer flows and low tide during dredging

operations. The sand and Mount Saint Helens ash that is removed from the river will be placed into trucks and transported to an upland site. Stockpiling of material may occur in a gravel area south of the boat ramp and outside of the 100 year floodplain (sheet 2, April 3, 2002 letter). The area for stockpiling is proposed to be encircled on the waterward side with straw bales aligned end to end for erosion control.

**Concrete Ramp:** Proposed improvements to the existing launch ramp encompass addition of precast panels and cast in place concrete overlay of the existing two lanes. The extension of the ramp via the precast concrete planks will not exceed 10 feet. The new concrete ramp section will terminate at -minus threefeet CRD. The new 10 foot section is below ordinary low water and expected to be submerged most of the time. Installation of the additional precast concrete panels will occur at low tide and low water in the dry. Vehicular access at a second, downstream, boat ramp is being blocked off with ecology blocks to reduce driving on the unmaintained trails in the adjacent riparian areas and on the sand bank. This measure is expected to aid in the success of the replanting and natural revegetation in the riparian area. The denuded areas around the blocked off downstream ramp will be replanted with willow and cottonwood cuttings at a density of sixfeet on center. Signs will be installed to notify citizens of the revegetation effort and the harmful effects of riparian disturbances.

**Pile Driving:** The installation of the debris log boom will require driving of nine steel pilings in the water. A vibratory hammer will be used to drive the piles.

**Installation of Rip Rap:** A total of 85 cubic yards of rip rap will be installed around the concrete ramp.

## **2.0 ENDANGERED SPECIES ACT SECTION 7 CONSULTATION**

### **2.1 Consultation History**

The Opinion is based on information provided in the Revised Biological Assessment (BA) received on June 12, 2000 and subsequent project changes documented in the administrative record. Formal consultation was initiated on November 16, 2000. The following is the consultation history for this project by calendar year:

- 2000: On February 17, 2000, NOAA Fisheries received a BA from the COE that determined the project was not likely to adversely affect listed species. On February 22, 2000, NOAA Fisheries requested additional information related to construction activities and dredging. On June 12, 2000, NOAA Fisheries received a copy of the revised BA; On June 29, 2000, NOAA Fisheries received a copy of the Hydraulic Project Approval. On November 16, 2000, NOAA Fisheries conducted a site visit.
- 2001: On January 29, 2001, NOAA Fisheries contacted the COE and requested that the applicant reduce the scope of the project based on impacts to listed fish. On March 16, 2001,

NOAA Fisheries received a letter from Richard Bemm of Kelso and Longview Parks and Recreation. On March 22, 2001, NOAA Fisheries drafted a response to Richard Bemm's letter. On March 29, 2001, NOAA Fisheries contacted the COE regarding the status of the project. On April 26, 2001 NOAA Fisheries informed the COE and applicant of staff change. On May 14, 2001 NOAA Fisheries received response from applicant to changes proposed on January 29, 2001. On July 31, 2001 NOAA Fisheries, the COE, and the applicant met for a site visit to discuss the revised proposed project (summarized in letter from August 13, 2001).

- 2002: Between August 2001 and April 2002 all three parties checked into further impact minimization. The applicant answered all outstanding questions on April 3, 2002 and facilitated NOAA Fisheries to conclude formal consultation.

The objective of this Opinion is to determine whether the proposed actions are likely to jeopardize the continued existence of listed species. This Opinion was completed pursuant to the Endangered Species Act (ESA) and its implementing regulations (50 C.F.R 402) and constitutes formal consultation for the above listed species.

## **2.2 Status of the Species**

### **Chinook Salmon**

Lower Columbia River chinook salmon were listed as a threatened species under the ESA on March 24, 1999 (64 Fed. Reg. 14308). In Washington, the LCR chinook ESU includes all naturally spawned chinook populations from the mouth of the Columbia River to the Cascade Crest.

Natural production of LCR chinook has been substantially reduced over the last century and long and short-term trends in abundance of individual populations are negative (Myers et al. 1998). There have been at least six documented extirpations of populations in this ESU, and other extirpations may have been masked by naturally spawning hatchery fish (Myers et al. 1998). Freshwater habitat is in poor condition throughout the Evolutionarily Significant Unit (ESU) (Myers et al. 1998).

Factors for decline of the LCR chinook have been attributed to habitat degradation primarily related to forest practices, urbanization in the Portland and Vancouver areas, hydroelectric dams, and agricultural practices. Substantial chinook spawning habitat has been blocked or passage has been reduced in the Cowlitz and Lewis Rivers on the Washington side. The LCR chinook also have been negatively influenced by genetic introgression from artificial propagation programs (63 Fed. Reg. 11495; March 9, 1998). Current evidence indicates a pervasive influence of hatchery fish on natural populations throughout this ESU where over 200 million fish from outside the ESU have been released since 1930 (Myers et al. 1998).

### **a River Steelhead**

Lower Columbia River steelhead were listed as threatened under the ESA on March 19, 1998 (63 Fed. Reg. 13347). In Washington, the LCR steelhead ESU includes winter and summer steelhead in tributaries to the Columbia River between the Cowlitz River and Wind River, inclusive (Busby et al. 1996).

The LCR steelhead is likely to become endangered in the foreseeable future based on information reported in Myers et al. (1998). Nineteen stocks of steelhead within the LCR ESU were identified as at risk of extinction or of special concern (Nehlsen et al. 1991). Recent and historical information related to abundance of steelhead is summarized in Busby et al. (1996).

There are several factors for decline of LCR steelhead including habitat degradation, overharvest, predation, hydroelectric dams, hatchery introgression, the eruption of Mount Saint Helens, and other natural or human-induced factors. Urbanization, forestry, water diversions, and mining also greatly reduced habitat complexity or eliminated habitat. There is strong concern about the pervasive influence of hatchery stocks within the ESU. There is no tribal or direct commercial fishery on steelhead although incidental catch of wild steelhead may occur in lower Columbia River fall gill-net fishery. (WDFW 1993)

#### Lower Columbia River Chum Salmon

Columbia River chum salmon were listed as threatened under the ESA on March 25, 1999 (64 FR 14507). Historically, chum salmon were abundant in lower portions of the Columbia River and supported annual harvests of hundreds of thousands of fish. Currently, relative abundance of chum salmon is likely less than one percent of historical levels and spawning is known to occur in only three streams (Hardy Creek, Hamilton Creek, and Grays River). Spawner surveys of chum salmon in three streams indicated that a few thousand to 10,000 chum salmon spawn each year in the Columbia River Basin (Johnson et al. 1997). In the Columbia River ESU, chum salmon from the Cowlitz River Hatchery Program are considered part of the ESU. It is believed that these chum populations have been influenced by hatchery programs and/or introduced stocks.

The factors for decline in naturally reproducing chum salmon populations are primarily attributed to habitat degradation, water diversions, harvest, dams, loss of estuarine habitats, and artificial propagation. Presently, there are no recreational or commercial fisheries for chum salmon in the Columbia River although some fish are incidentally taken in the gill-net fisheries for coho and chinook salmon.

Table 1. The following references contain specific information related to the listing status and life histories for listed salmonids in Washington State (Table 1).



<b>Fish Species/ ESU</b>	<b>Listing Status</b>	<b>Citations for Biological Information</b>
Lower Columbia River Chinook Salmon	64 Fed. Reg. 14308; 3/24/99	Myers et al. 1998
Lower Columbia River Steelhead	63 Fed. Reg. 13347; 3/19/98	Busby et al. 1996; NOAA Fisheries 1996
Columbia River Chum Salmon	64 Fed. Reg. 14507; 3/25/99	Johnson et al. 1997

## 2.3 Evaluating the Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 C.F.R. Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of injury and mortality attributed to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. A determination of jeopardy is appropriate if the proposal, when evaluated together with the baseline and any cumulative effects, will appreciably reduce the likelihood of survival or recovery by reducing numbers, distribution, or reproduction of these species. If NOAA Fisheries finds that the action is likely to result in jeopardy, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to adversely affect the listed species' habitat. NOAA Fisheries determines whether habitat modifications appreciably diminish the value of habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of habitat. Then NOAA Fisheries considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. Guidance for making determinations of jeopardy are contained in *The Habitat Approach, Implementation of*

*Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids, August 1999.*

For the proposed action, NOAA Fisheries's jeopardy analysis considers direct or indirect injury and mortality of fish attributable to the action. The NOAA Fisheries' habitat analysis considers the extent to which the proposed action impairs the function of essential habitat elements (spawning, rearing, feeding, sheltering, or migration) of LCR steelhead, LCR spring chinook salmon, and LCR chum salmon.

## Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. The NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which time protection under the ESA would be unnecessary. Species or evolutionary significant units (ESUs) not requiring ESA protection have the following attributes: population sizes large enough to maintain genetic diversity and heterogeneity, the ability to adapt to and survive environmental variation, and the ability to be self-sustaining in the natural environment.

For this consultation the relevant biological requirements are functioning riparian habitat, flood plain connectivity, water quality, and undisturbed passage conditions (migratory access to and from potential spawning and rearing areas).

## Environmental Baseline

The environmental baseline represents the current set of conditions to which the effects of the proposed action are then added. Environmental baseline is defined as "the past and present impacts of all Federal, State, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 C.F.R 402.02). The term "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

In the Cowlitz Basin, the Mayfield Dam at river mile 65.5 has altered salmonid habitat. It has eliminated access to 80% of the historic salmonid spawning and rearing habitat, which was

upstream of the structure (WDFW 1993). Downstream habitat is also impacted by the dam, by altering the transport of sediments to downstream habitats. The operation of the dam to maintain the reservoir (Riffe Lake) level for winter flood control and summer recreation also alters the flow regime downstream of Mayfield Dam, which might also increase travel time of listed species. Instream flow release levels for fish also enter in the management of the hydrological regime at Riffe Lake.

The Cowlitz River and several of its tributaries have also been negatively influenced by channel modification and diking. Grazing, agriculture, forestry, and residential and commercial development also have reduced riparian function, reduced bank stability, and contributed fine sediments to several tributaries. Fish passage problems occur in a number of tributaries to the Cowlitz River Basin (Wade October 2000). Additionally, the Cowlitz River was included on the Washington Department of Ecology 303(d) list of impaired waters based on elevated levels of water temperature, sediment, and fecal coliform.

The Cowlitz Salmon Hatchery and the Cowlitz Trout Hatchery annually produce 12 to 14 million fish including spring chinook, fall chinook, coho, sea-run cutthroat, and winter steelhead. Hatchery fish negatively influence naturally spawned salmonids by introducing diseases, increasing competition, and preying on juvenile salmonids (Nickelson et al. 1986; Steward and Bjornn 1990, White et al. 1995).

#### of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 C.F.R. 402.2). The action area for the proposed project includes the Cowlitz River one mile upstream of the construction site and extends one mile downstream to the Columbia River. The action area also includes the riparian area of the Cowlitz River from river mile 1.7 to river mile 1.5 on the west bank. The action area includes the waters of the Cowlitz where most recreational fishing pressure from boats that access via Gerhard Garden boat launch is expected to occur.

#### n the Action Area

##### 2.3.4.1 Winter and Summer Steelhead

Young-of-the-year and juvenile winter and young-of-the-year, juvenile, and adult summer steelhead may inhabit the action area during construction in July and August.

In the Cowlitz River, the upstream migration of adult winter steelhead generally occurs from December through April and spawning occurs from early March to June. Steelhead eggs may incubate for 1.5 to 4 months before hatching depending on water temperature (61 Fed. Reg. 41542; August 9, 1996).

The majority of winter steelhead production is associated with hatchery fish, and it is likely that those fish produce most of the current steelhead production in the Cowlitz River. From 1981 to 1994, 4,567,732 steelhead of Skamania River stock and 12,953,071 steelhead of Cowlitz River stock were released into the Cowlitz River (Busby et al. 1996). Steelhead in the Cowlitz River are in low abundance with total escapements ranging from 100 to 1000 fish (Busby et al. 1996). Busby et al. (1996) reports significant negative percent annual changes for winter steelhead for two major Cowlitz River tributaries: Coweeman River - 11.7%, Green River - 16.5%. There is no tribal or direct commercial fishery on this stock although incidental catch of wild steelhead may occur in lower Columbia River gill-net fishery for spring chinook salmon (WDFW 1993).

Historically summer steelhead inhabited the Cowlitz River. Summer steelhead enter the fresh water in June or July. They overwinter in freshwater and spawn the following March through May. Little information is available describing the historical abundance of summer steelhead prior to the construction of the Cowlitz Hatchery. From 1962 to 1966, only 75 of the 54,044 steelhead counted at Mayfield Dam were classified as summer steelhead (Thompson and Rothfus 1996). In 1968, hatchery steelhead of Skamania origin were introduced in the Cowlitz River. Since then few summer steelhead are produced naturally. From 1983 to 1998, the estimated total return of summer steelhead in the river ranged from 759 to 17,913 (Harza 2000).

Sport fisheries on hatchery trout and salmon may have an impact on steelhead due to the catch and release mortality associated with incidentally caught wild fish (Bendock and Alexandersdottir, 1993; Lindsay et.al. 1999; Muoneke and Childress, 1994). Sport fishing for mainly hatchery trout and salmon is open year round on the lower Cowlitz River (WDFW Fishing Regulations).

#### 2.3.4.2 Spring and Fall Chinook

Adult and juvenile spring and fall chinook may occur in the action area during construction in July and August. Spring and fall chinook salmon are native to the Cowlitz River. Adult spring chinook migrate from March to September in the river and spawning occurs from September to early October. Fry emerge from December through February. Spring chinook fry rear for around a year in the river and then yearling outmigration occurs the following April through August (Harza 2000). Prior to the completion of the dam, spring chinook spawning primarily occurred upstream of the dam. From 1962 to 1966, an average of 8,720 adults and 1,208 jacks were counted at the Mayfield Dam. An average of 2,838 adults from the hatchery were trucked upstream of the dam from 1974 to 1980, and adult counts ranged from 90 to 1,116 from 1980 to 1991. Spring chinook runs in the river have been maintained by the Cowlitz Salmon Hatchery since 1968 (Harza 2000). Myers et. al. (1998) reports negative long term trends of - 4.3% for the spring chinook population.

Fall chinook were native to the Cowlitz River and abundant prior to the construction of the Mayfield Dam. The completion of the Cowlitz River Salmon Hatchery in 1967 resulted in a mixed stock where a majority of the fish in some years were of hatchery origin. In the Cowlitz

River, fall chinook migrate upstream from late August through November and spawning occurs from September to December (WDFW 1993). Fall chinook spawn throughout 45 miles of the river from the Cowlitz River Salmon Hatchery to the Kelso Bridge. Juvenile emigration occurs from June through August and typically ends in December. From 1967 to 1991, escapements of fall chinook in the Cowlitz River ranged from 2,450 to 23,345 fish (average of 6,778 chinook). (Harza 2000) Myers et. al. (1998) reports negative long term trends of - 3.2% for the fall chinook population.

Sport fisheries on hatchery trout and salmon may have an impact on chinook due to the catch and release mortality associated with accidentally caught wild fish (Bendock and Alexandersdottir, 1993; Lindsay et.al. 1999; Muoneke and Childress, 1994). Sport fishing for hatchery trout and salmon is open year round on the lower Cowlitz River (WDFW Fishing Regulations).

#### 2.3.4.3 Chum

Chum spawning is believed to have occurred historically in the lower reaches of the Cowlitz River and Coweeman River. Chum salmon typically enter the Columbia River in October and November and spawn from October to December. In 1951, a minimum of 1,000 chum returned to the Cowlitz River. The hatchery reports less than 10 adults returning in an average year. (Harza 2000). Current information on chum in the Cowlitz River is not available. Chum salmon are not expected to occur in the action area during construction in July and August, as the Cowlitz River is not known to currently support a native chum population (63 FR 11774, March 10, 1998).

#### in the Action Area

The Burlington Northern railroad line channelizes the lower Cowlitz River at the project location and several other locations in the action area. The location of the rail line, in combination with other channelizing and restricting features, including State Route (SR) 432, prevents the river from meandering over the floodplain. Historically the confluence with the Columbia was not fixed in place but changed as the lower Cowlitz River meandered.

There is currently little functioning riparian vegetation within the action area near the proposed boat launch. Gerhard Garden itself has a shoreline of approximately 2100 feet. About 1400 feet have wooded riparian vegetation of less than 50 feet, mostly willow and cottonwood, with a high degree of disturbance. The remaining 700 feet have a nearly 100 foot riparian corridor also with many signs of disturbance. Open areas, damaged trees, and trash are common. Riparian disturbance is caused by vehicle and pedestrian traffic in the wooded area. The opposite river bank is rip-rapped by the railroad.

The activities at the boat launch directly harass fish. Swimming and boat launching is likely to cause juveniles and adult salmonids to avoid the area and either delay migration or move to the

other shore. The boating activity is likely to also contribute to water quality degradation due to oil and gas leaks.

From the information provided above, NOAA Fisheries concludes that not all of the biological requirements of the species within the action area are being met under current conditions. Based on the best available information on the environmental baseline, the status of the affected species, and information regarding population status and trends within the action area, listed species in the action area are effected by the presence and operation of Mayfield Dam, other human activities including agriculture, forestry, and residential and commercial development. Salmonid population trends do not show an increase. The factors that negatively affect the habitat and salmonids in the action area persist. Significant improvement in habitat conditions over those currently available under the environmental baseline is needed to meet the biological requirements for survival and recovery of these species.

## **2.4 Effects of the Proposed Action**

The COE has concluded that the proposed dredging and installation of boarding floats and rip rap are likely to adversely affect LCR chinook, LCR steelhead, and LCR chum. The ESA implementing regulations define “effects of the action” as “the direct and indirect effects of an action on the species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline.” “Indirect effects” are defined as those that are caused by the proposed action at a later time, but still are reasonably certain to occur (50 C.F.R 402.02).

### **4.1 Direct Effects**

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated actions and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline) are not evaluated. (USFWS & NOAA Fisheries 1998)

The direct negative effects of the proposed activities derive from construction in the water. Any direct negative effects from the proposed project likely will be short in duration and occur in a relatively localized area. The proposed period of construction and dredging, July 1 to August 31, overlaps with the possible occurrence of young-of-the-year and juvenile winter steelhead and young-of-the-year, juvenile, and adult summer steelhead. Juvenile and adult spring and fall chinook are also likely to be present within the construction area during dredging.

Annual dredging of the channel for boat access will increase turbidity for the duration of the dredging period during each of the ten years of the COE permit. Due to the July/August work window this increase will occur at a time of the year when water quality problems are most likely to persist and when natural increases in sedimentation are least likely to occur. Natural

increases in turbidity mostly occur with high precipitation and high flow events like spring freshets. The combined effect of water quality problems (elevated levels of water temperature, sediment, and fecal coliforms), and increased turbidity is likely to increase the negative effect on salmonids, compared to each factor working separately.

Elevated concentrations of suspended sediments may cause juvenile salmonids to avoid the area, (Bisson and Bilby 1982) and elevated turbidity levels reduce the ability of salmonids to detect prey and may cause gill damage (Sigler 1980; Lloyd et al. 1987). Elevated turbidity levels (11 to 49 NTU's) may cause juvenile steelhead and coho to leave rearing areas (Sigler et al. 1984). However, the increase in turbidity associated with the annual dredging is assumed to be small, based on the fact that area to be dredged is small (approximately 6,000 cubic yards annually), and that sand is the main component of the to be dredged material. Sand will quickly settle out of suspension. No data are available (on the percent of ash and other fine materials in the sediment) to better quantify the increase in turbidity.

Dredging of a boat access channel also reduces and disrupts the shallow water and low velocity area. Shallow water and low velocity areas serve as refuge and feeding areas for salmonids (Bottom and Jones 1990; Dawley et al. 1986; Sherwood et al. 1986). Entrainment of juvenile fish is not an issue for this consultation as entrainment has not been associated with clam shell dredging.

The driving of nine steel piles with a vibratory hammer is expected to cause momentary effects on juvenile salmonids during the time hammering occurs. Effects on fish from pile driving stem from increased underwater sound pressure waves. The effects of the increase in sound on fishes have been shown to cause avoidance of areas from which high noise levels emanate (Feist 1991). Such avoidance can lead to altered behavioral patterns in fish including delayed migration. In addition to the noise level, the duration of the exposure to the sound pressure determines the level of harm to fish (Hastings 1996). Recent information suggests that the use of a vibratory hammer does not appear to injure juveniles and thus is preferable over an impact hammer (NOAA Fisheries, August 2002). Because of the short duration of the impact, and the limited number of new piles (nine), and the use of a vibratory hammer, the effects are expected to be somewhat limited.

The adverse effects from both the expansion of the boat ramp and the placement of riprap armor adjacent to the ramp are expected to be very small and localized due to the small footprint. They will, however, incrementally reduce available natural habitat. Generally, salmonid densities appear to be lower adjacent to stabilized banks than adjacent to natural river banks (Knudsen and Dilley 1987; Li et al. 1984). Researchers in western Washington suggest that fish densities typically are lower at stabilized banks, except when large woody debris is incorporated into the design (Peters et al. 1998).

The beneficial effect of this project is a reduction of existing vehicular access to the river through its floodplain. The existing access has been damaging to the beach and riparian area adjacent to the project area. The placement of ecology block access barriers at the old downstream launch site in combination with the replanting of currently denuded riparian area is expected to result in improved baseline conditions for riparian habitat. An approximately 60 foot wide and 400 foot long strip of disturbed riparian forest is expected to recover from vehicular and motorbike use. Also, use of the sandbank and shallow water habitat associated with this riparian strip is expected to be reduced.

## 2. Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or be a logical extension of the proposed action.

One indirect effect of improving the boat launch, deepening the channel, and increasing the number of parking spots in the parking lot, is an increase in the number of boats launched in lower Cowlitz River. The proposed upgrades and improvements at Gerhart Boat Launch are estimated to increase the number of boats launched to between 3,000 and 5,000 additional boats



per year (NRC April, 2000). Effects related to the increased recreational use are corollary increases in turbidity, physical disturbance, water quality degradation, and harassment of fish.

Some increase in turbidity results from bottom sediments being disturbed by the increased boat traffic, and changed hydrodynamic conditions at the dredged boat access channel. Morton (1977) determined that dredging and the disposal of the materials may increase the natural rate of sediment erosion, sediment transport and deposition. Additionally, the removal of materials from the streambed influences the bottom topography with resultant changes in water circulation (Morton 1977). Changed hydrodynamic conditions are expected to result from water flowing over the zero to five foot deep, 60 foot wide, and 300 foot long access channel. This trench in a shallow water habitat is expected to cause turbulence that also results in increased turbidity. The turbulence is thought to erode the sides of the trench and fill it in from the sides, which process necessitates the proposed repeated dredging. The effect of the increased turbidity on salmonids are expected to be behavioral and sub-lethal due to the dominance of sand in the sediment. (Sigler 1988, Kirn *et al.* 1986, Emmett *et al.* 1988, Servizi 1988, Berg and Northcote 1985, Newcombe and Jensen 1996).

The additional boating activity is likely to result in an increase in water quality degradation from increased oil and gas pollution, and added disturbance to listed salmonids in the Cowlitz River. Boat launching is likely to cause juveniles and adult salmonids to avoid the area and either delay migration or move to the other shore.

Based on Kahler *et al.* (2000), potential effects associated with overwater structures on fish and aquatic habitat include the following: (1) overwater structures provide cover, shade, and focal points for exotic predators of juvenile chinook and steelhead; (2) shading from overwater structures may reduce the abundance of prey organisms available to juvenile chinook and steelhead due to loss of aquatic vegetation and phytoplankton; (3) the boating activity that accompanies the docks may disturb rearing and/or migrating chinook and steelhead; and 4. chemicals used to preserve and clean wood structures, and hydrocarbons from boats and personal watercraft could be toxic to chinook and steelhead.

These indirect effects are expected to impact all listed salmonids occurring in the Cowlitz, including the few chum salmon that are thought to stray from other Lower Columbia River spawning locations into the Cowlitz.

## Cumulative Effects

Cumulative effects are defined as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation” (50 C.F.R 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Non-Federal activities of the type identified as factors for decline by NOAA Fisheries occur within the Cowlitz River basin and within the action area. With a projected 34% in human population over the next 20 years in Washington (DNR 2000) these factors are expected to increase, too. Thus, NOAA Fisheries assumes that future private and State actions will continue within the action area, but at increasingly higher levels as population density climbs. In particular, riparian disturbance from unauthorized access along the SR 432 bridge abutments is expected to increase.

## 2.5 Conclusion

NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of LCR steelhead, LCR chinook, CR chum, SW/LCR coho. NOAA Fisheries bases its determination of no jeopardy on the current status of each species, the environmental baseline for the proposed action area, the effects of the proposed action, and the cumulative effects.

There will be short term negative impacts associated with the one time pile driving and the annual dredging. Additionally there will be negative impacts resulting from the proposed project which will last as long as the structure is in place. These impacts include the reduced and altered shallow water habitat, the disturbance from additional boat traffic, and the reduction in water quality related to the additional boat traffic. These negative impacts further degrade an already degraded base line. In addition the cumulative effects expected in the area give reason to believe that additional degradation from the population increase and its associated increased pressure on natural resources will occur.

However, the minimization measures and the overall small scale of the proposed project lead NOAA Fisheries to conclude that the overall action will not further appreciably reduce the baseline conditions. Blocking of the existing second boat ramp will direct boat access and use of the river to the boat ramp proposed for improvement under this COE permitting action. This, in addition to the plantings, will allow for the establishment of much needed improved riparian and near shore habitat. Also, the small scale of the proposed project makes it hard to identify an appreciable reduction in the likelihood of survival and recovery of LCR steelhead and LCR chinook. The minimization measures and the small scale of the project were important considerations to arrive at the non-jeopardy conclusion for this action.

## **2.6 Reinitiation of Consultation**

This concludes formal consultation for the expansion of the boat launch in the Cowlitz River. Construction must cease and consultation must be reinitiated if: the extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

## **2.7 Incidental Take Statement**

Section 9 of the ESA and Federal regulation pursuant to section 4 (d) of the Act prohibit the take of endangered and threatened species without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct of listed species without a specific permit or exemption (50 C.F.R. 217.12). “Harm” is further defined by regulation to include significant habitat modification or degradation that results in death or injury to listed species by “significantly impairing behavioral patterns such as breeding, spawning, rearing, migrating, feeding, and sheltering” (50 C.F.R. 222.102). Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such takings is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### **Anticipated Take**

NOAA Fisheries anticipates that components of the proposed action are reasonably certain to result in incidental take. Despite the use of the best scientific and commercial data available, NOAA Fisheries cannot estimate a specific amount of take of individual fish. Harm to juvenile salmonids may result from the temporary periodic increased levels of suspended sediment and turbidity associated with the annual dredging. Injury or death may result indirectly from the installation of the boarding float, shading from which may facilitate predator attacks on juvenile salmonids. Harm is likely to occur due to the installation of rip-rap and extension of the concrete ramp which degrade habitat features, mainly near-shore habitat, that are essential to juvenile salmonids, and from the alteration of the shallow water area from dredging. The total amount of habitat to be modified under this proposal consists of 0.27 acres from the placement of the

concrete ramp and riprap, and the deepening of the shallow area extending waterward of the ramp, in a prism 300 feet long, 60 feet wide, and a depth up to minus 3 feet Columbia River Datum.

The Incidental Take Statement is effective for years from 2002 to 2012, to account for the maintenance dredging of the proposed project.

#### 2.7.2 Reasonable and Prudent Measures

The NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of LCR chinook, LCR steelhead, and CR chum:

1. The COE will minimize take by replanting affected riparian areas and ensuring the establishment of the riparian plantings.
2. The COE will minimize take by requiring the use of erosion control measures.
3. The COE will minimize take during construction by ensuring that the effects of heavy equipment operation on water quality are avoided or reduced.
4. The COE will minimize take by ensuring that the effects maintenance dredging are avoided or reduced.

#### ns and Conditions

To be exempt from the prohibitions of ESA section 9, the COE must comply with the terms and conditions that implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The COE shall implement RPM No. 1 by a) watering planted riparian areas and replacing dead plants for five years after completion of the project replanting. Replanting shall continue at the end of five years if less than 80% of the replanted areas have succeeded. In the alternative, the COE shall consult NOAA Fisheries to discuss another approach to ensure the success of the replanted areas, in accordance with the specifications mentioned in the BA and this Biological Opinion.

To further implement RPM No. 1, The COE shall prepare annual reports that include a description of the measures taken, including weed control, watering, replacement of dead plants, estimate of areal cover, and pictures of the vehicular barrier and riparian replanted area. Reports shall be sent to NOAA Fisheries, Washington Habitat Branch Office in Lacey, Washington in subsequent years on the date of the signature of this Biological Opinion.

2. The COE shall implement RPM No. 2 by ensuring that erosion control measures are in-place at all times during the contract and will be routinely inspected throughout the project. Certified weed free straw or hay bales will be used to prevent introduction of noxious weeds.

Construction within the five-year floodplain will not begin until all erosion control structures are in-place.

3. The COE shall implement RPM No. 3 will be implemented by ensuring that construction equipment not enter the water at any time. Dredging equipment may operate from the sand bar. Equipment shall be fueled and cleaned in an upland location prior to entering the work site.
4. The COE shall implement RPM No. 4 by ensuring that dredging of the boat access channel occurs mostly in the dry. This shall be accomplished by starting work at the shore side and proceeding outward to the flow lane. By leaving a plug between the river and the work area dredging can occur mostly in the dry.

## **2.8 Conservation Recommendations**

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitats, or to develop additional information. NMFS believes the following conservation recommendations are consistent with these obligations, and therefore should be carried out by the COE:

The current location of the boat launch is poor. Sand will always accumulate in the inside bend of the river meander. This will make launching of boats difficult and necessitate repeated dredging to launch bigger boats. NOAA Fisheries recommends the applicant check into alternate locations for a boat launch and do a cost benefit analysis on relocating the launch facility. This analysis should be done at year five of the proposed annual maintenance dredging to have sufficient lead time to relocate the facility and discontinue the existing one prior to the end of the current 10 year dredging permit. For similar projects proposed in the future, the COE should work with their customers such as the applicant in this consultation to consider the effects of maintaining such projects on species listed under the ESA, and the resources they depend on.

## **3.0 ESSENTIAL FISH HABITAT CONSULTATION**

### **3.1 Background**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

5. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
6. NOAA Fisheries must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A));
7. Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities. The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

### **3.2 Identification of EFH**

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Federally-managed Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of

potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

### **3.3 Proposed Actions**

The proposed action and action area are detailed above in Section 1 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of Chinook and Coho.

### **3.4 Effects of Proposed Action**

As described in detail in Section 2.4 of this document, the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters. These adverse effects are:

1. Short-term increase in suspended sediment due to dredging.
2. Decrease in and hydrological alteration of shallow water habitat resulting from the dredging of a boat access channel to the Cowlitz River flow lane.
3. Shading and predator cover from the 120 foot boarding float.
4. Increase in disturbance from expected increase in boating traffic.
5. Decrease in natural shoreline habitat due to the extension of the concrete ramp and the installation of rip rap.
6. Short-term impacts on sound levels in the project area resulting from pile driving.

### **3.5 Conclusion**

NOAA Fisheries concludes that the proposed action would adversely affect designated EFH for Chinook and Coho.

### **3.6 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the Biological Assessment will be implemented by the COE, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Conditions outlined in Section 2.7.3 are generally applicable to designated EFH for Chinook and Coho, and address these adverse effects. Consequently, NOAA Fisheries recommends that they be adopted as EFH conservation measures.

### **3.7 Statutory Response Requirement**

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

### **3.8 Supplemental Consultation**

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).



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